The Institute of Contemporary Russian Studies

Fordham University
Bronx, N. Y. 10458

Selected Abstracts

from

Soviet Biomedical Journals

Series IV

No. 1

Prepared by

Robert Pollitzer, M.D.

Contract No.

DA-18-064-AMC-495(A)

October 1966

1. Kamalian, L. A., et al., A contribution to the state of anti-smallpox immunity in rabbits under the conditions of primary and repeated X-irradiation. Zh. Mikrobiol. (1966) 2:71-74.
(From the Radiobiology Section, AMS, USSR.)

The authors found that a preliminary X-ray irradiation (500p) leads to a depression of the reactivity of rabbits to the smallpox virus, which disappears after one month. The preliminary irradiation also conferred on the rabbits a resistance to a repeated irrradiation with 100p, made 2 months afterwards. However, the repeated irradiation exerted no influence on a previously acquired intensive immunity against smallpox.

2. Pavlova, I. B. and Cats, L. N., Comparative Electron-Microscopic and Cytochemical Study of B. Anthracis and B. Cereus. Zh. Mikrobiol. (1966) 2:90-94.
(From the Gamaleia IEM, AMS, USSR.)

The authors reported upon comparative investigations of the vaccinal strain 7 1/12 and the saprophytic strain B. Cereus which, they claimed, were of importance for the laboratory diagnosis of anthrax and of potential value for further systematic studies upon gram-positive spore-bearing aerobes.

In their conclusions they characterized the outstanding differences between the two organisms as follows:

> "The fundamental differences between B. Anthracis and B. Cereus consist of different growth characteristics on monolayer cultures, the presence of a capsule and the absence of flagellae in the former as well as the greater activity of its redox enzymes. Differences exist also in the structure of the intracytoplasmatic membranous systems."

3. Mikhailova, O. A., et al., Pseudotuberculosis Attacks in Man. Zh. Mikrobiol. (1966) 2:104-107.

Briefly referring in their article's introduction to the observations of Knapp (Zbl. Bakt. T. Orig. 161 [1954]: 422), the authors stated that in the Soviet Union human pseudotuberculosis attacks were described first by IUshchenko and Kuzmaite (Zh. Mikrobiol. [1964] 5:96) who isolated the causative organisms of this infection from the mesenteric lymph nodes of three patients apparently suffering from acute appendicitis.

In Vladivostok positive findings were made in domestic and wild rodents since 1949.

The authors themselves examined during the period from March to July, 1965, 107 patients showing the clinical signs of acute appendicitis. Subjected to appendectomy, 55 of them showed the signs of a catarrhal process, the others the phlegmonous or gangrenous form of the disease.

Since no systematic advantage was taken of an examination of the mesenterial lymph nodes, only 6 pseudotuberculosis strains were isolated from this material, all from patients with catarrhal appendicitis. Out of the 6 strains, which were all highly virulent, 4 belonged to the serological Type I, 2 to Type III.

Examining also the blood of 12 selected at random patients suffering from septico-typhoid affections, the authors succeeded in isolating one pseudotuberculosis culture found on the 30th day of illness. It belonged to Type II and was somewhat less virulent than the strains from the appendicitis patients.

While agglutination tests with the serum of this woman gave a negative result, the authors obtained positive results with Type I serum at titers of 1:320 with the sera of 2 of the other 12 patients with higher fever.

4. Lavrovskaia, V. M., A study of the Immunogenic Specificity of the Antigen of the Cholera Vibrio. Zh. Mikrobiol. (1966) 2:107-111.
(From the Gor'kii IEM.)

In a previous publication Lavrovskaia, comparing some kinds of "corpuscular" and "chemical" cholera vaccines, came to the conclusion that the soluble chemical antigens are also endowed with a sufficiently high immunisatory activity.

In the present paper the author reports on the efficacy of one each of these two kinds of vaccines in animal experiments. The soluble antigenic complex for this purpose was obtained with the aid of tryptic proteolysis and used adsorbed on hydrated aluminum oxide.

The conclusions reached through these investigations were as follows:

"1. It was possible to establish the specific activity of the heat-killed vaccine as well as that of a soluble chemical antigenic complex, prepared with the aid of submerged cultivation of broth suspensions of Vibrio Cholerae.

2. Immunization of test animals with both preparations brings about a marked plasmocytary reaction of the lymphoid tissues, the absorbed soluble antigen exerting a more marked and prolonged action in this respect.

3. The formation of specific agglutinins in the blood of the test rabbits was more active in the case of immunization with the depot soluble antigen complex.

4. The preventive activity of the sera of rabbits immunized with both kinds of vaccines appeared to be increased. In this process the heat-killed vaccine led to an earlier appearance of the preventive action of the sera, the depot antigen to a more slowly appearing but longer lasting action.

5. A correlation was established between the character of the morphological changes in the immunologically important lymphoid tissues and the dynamics of the changes in some of the protective humoral factors."

5. Minkov, G. B., Identification of brucella cultures isolated from aborted fetuses of sheep vaccinated against brucellosis. Zh. mikrobiol. (1966) 2: 117-121. (From the Astrakhan Anti-Plague Station.)

The authors examined 12 strains isolated from the fetuses of sheep which had aborted even though they had been inoculated against brucellosis. As described in detail, these freshly isolated strains showed some characteristics differentiating them from the parental vaccinal strain. Using the methods of selection recommended by White and Wilson, the original qualities of the strains could be restored.

6. Dmitrovskaia, T. I., Peculiar clinical manifestations in affections caused by S. typhi murium. Author's summary. Zh. mikrobiol. (1966) 2: 137.

(From the Institute for the Advanced Training of Physicians, MH, Kazakh SSR.)

This note describes an outbreak of S. typhi murium infections in a Childrens' Home in Alma-Ata which involved 107 persons. 21.4% of the patients were severely affected and 3 children died-- 2 within 8-10 hours after onset of the disease. The nature of the infection was confirmed through bacteriological and serological tests.

Kniazeva, E. N., The immunity in guinea pigs vaccinated simultaneously with live brucellosis and Q-fever vaccines. Author's summary. Zh. mikrobiol. (1966) 2: 139-140. (From the Gamaleia IEM, AMS, USSR.)

The author found the simultaneous administration of live Q-fever and brucellosis vaccines compatible.

Budzhav, Changa (Ulan-Bator): Public health in the Mongolian People's Republic for the last 40 years. Sovetskoe zdravookhranenie (1966) 3: 84-88.

This progress report can be mentioned by title only.

Kulik, N. M., Group inhalator for portable aerosol apparatuses. Vrachebnoe delo (1966) 2:126-127. (From the Tuberculosis Department of the Crimean MI.)

This brief note which is illustrated by 3 schematic drawings, must be consulted in the original or in a translation.

Vylegzhanin, A. F., Remarks on the sanitary evaluation of fish infected with fish-pathogenic vibrios. Gigiena i sanitariia (1966) 1: 108-109. (From the Astrakhan Institute of Fish Industry.)

The conclusions reached by the author of this note which deals with a disease caused in different species of Caspian fish by Vibrio caspii, were as follows:

"1. The fish-pathogenic vibrios, causing a disease of the Caspian fish, are endowed with pathogenic properties in respect to warm-blooded as well as cold-blooded animals...

2. It is recommended to use fish affected with cutaneous-ulcerative manifestations for consumption only after they have been subjected to a temperature of 100°C for not less than 10-20 minutes or after treatment with salt in a concentration of minimally 17-18% for at least one month. Cooling of the fish to a temperature of 0° and freezing at -25°C for 12 hours as well as smoking do not lead to the killing of the vibrios.

3. Corresponding instructions must be embodied into the new sanitary regulations."

11. Kutsemakina, A. Z., The nucleotid composition of the desoxyribonucleinic acid of the cholera and cholera-like vibrios. Zh. mikrobiol. (1966) 3: 10-13.
(From the Stavropol Branch of the All-Soviet SR Anti-Plague Institute "Mikrob".)

From the identical composition of the nucleotides of 2 cholera and 15 cholera-like strains as well as from the similarity of other properties of these cultures the author concluded that the two kinds of strains belonged to a common taxonomic group and were presumably genetically related.

12. Messinova, O. V. and IUsunova, D. B., Desoxyribonuclease of pathogenic bacteria. A survey of the Literature. Zh. mikrobiol. (1966) 3: 39-44.
(From the Kazan' State University.)

This literature survey can be mentioned by title only.

13. Meshcheriakova, I. S. and Ivanova, M. A., Serological methods for the examination of farm animals for tularemia. Zh. mikrobiol. (1966) 3: 53-55.
(From the Gamaleia IEM, AMS, USSR and the Moscow Meat-Packing Factory.)

Farm animals (cattle, swine, sheep, horses), because little sensitive to tularemia, play no practical role in the causation of this infection. It has been claimed, however, that positive serological findings in them may lead to the detection of hidden tularemia foci (see e. g. Vasil'eva et al., Trudy Ufimskogo n.-i. inst. vaktsin i syvorotok [1957] 4: 35 and Adamovich & Fel'dman, Zh..mikrobiol [1960] 9: 71). On the contrary Gavrilevskii (Trudy Leningradskogo inst. epidemiol. i mikrobiol.25 [1963]: 346) maintained that the agglutination tests used by him and the above mentioned authors might have given unspecific results.

For a further study of this problem the present authors used cattle and swine arriving at the station for disease-suspect animals of the Moscow Meat Packing Plant. Besides agglutination tests also passive hemagglutination tests, were made (see Meshcheriakova, Laboratornoe delo [1964] 9: 539) and in each instance made further tests with brucellosis antigen. As positive were recognized only specimens showing tularemia agglutination titers of at least 1:40 and hemagglutination titers of at least 1:320 and at the same time giving negative results with brucellosis antigen. Specimens with lower tularemia titers or such reacting with brucellosis antigen were classified as doubtful.

Grouped in this manner, the material examined by the authors fell into the following categories:

	Total	Negative		Doubtful		Positive	
Species	Examined	Number	Per cent	Number	Per cent	Number	Per cent
Cattle	395	159	40.5	214	54	22	5.5
Swine	288	72	25	191	66	25	9

Most of the positively reacting animals (all adults) came from the Luberets and Leninsk raions of the Moscow Oblast where tularemia epizootics had been recorded in the past. No doubt they had contracted the infection through contact with wild tularemia-affected animals.

Ostrovskaia, N. N. and Kaitmazova, E. I., Sampling with the bacteriophage Tb as a supplementary test for the differentiation of the species of brucellae. Zh. mikrobiol. (1966) 3: 75-79. (From the Gamaleia TSM, AMS, USSR.)

The authors of this important article, the details of which must be studied by those interested in the problems of brucellosis, thus summarized the observations they made with the bacteriophage Tb (Tbilisi), isolated by Popkhadze and Abashidze (see book Bakteriofagi, Tbilisi [1957]: 321):

> "1. Cultures of Br. abortus, isolated in different raions of the Soviet Union in various foci of the infection from cows, sheep, swine and man became lysed by the phage Tb in 96.6% (310 out of 321 cultures)...
>
> 2. The majority of the cultures of Br. melitensis (293 out of 298) proved resistent to the phage Tb.
>
> 3. The cultures of Br. suis reacted differently to the phage Tb. Those isolated from swine and hares were phage-resistent, whereas those from cows and man were more or less sensitive to the undiluted phage.
>
> 4. Sampling with the bacteriophage Tb (Tbilisi), race 3, can be utilized as a supplementary test for the species differentiation of the brucellae. It is recommended to use the phage in two concentrations - undiluted containing not less than $1x10^9$ particles per ml and in diluted form, with a particle concentration equalling $1x10^6$ per ml."

15. Mukhorodov, F. G. et al., Observations on the treatment of anthrax patients. Zh. mikrobiol. (1966) 3: 143-145. (From the Kemerova MI and Municipal Infectious Diseases Hospital.)

Judging from observations on 12 patients, the authors recommend a complex form of anthrax treatment, consisting of the administration of anti-anthrax serum, penicillin, biomycin, vitamins and symptomatically indicated drugs. In specially grave conditions hormonal therapy is also indicated.

16. Titov, M. B. and Lutsuk, A. S., Observations on ornithoses in the western oblasts, of the Ukraine. Authors' review. Zh. mikrobiol. (1966) 3: 154-155 (From the L'vov MI.)

In order to ascertain the presence of ornithosis in the western part of the Ukraine, the authors made intracutaneous tests with ornithosis antigen in 247 persons suffering from various diseases and in 34 workers of the meat-packing factory. Positive reactions were found in 28 of the patients and in 10 of the healthy group. 8 of the patients actually suffered from syndromes suggestive of ornithosis, whereas the others had histories of suspicious affections.

17. TSvetkova, E. M. A study of the dynamics of the bacteriological process underlying the treatment of experimental tularemia with kanamycin, chlortetracycline and streptomycin. Antibiotiki 11 (1966) 3: 253-257.
(From the Tularemia Laboratory of the Gamaleia IEM, AMS, USSR.)

Careful investigations, the details of which do not lend themselves to the purpose of a brief summary, led the author to the following conclusions:

"1. The treatment of guinea pigs with the selected doses of kanamycin, chlortetracycline and streptomycin, commenced at the acme of illness caused through infection with 100 lethal doses of a virulent tularemia strain, led already during the next days to a marked drop of the number of the organisms in the organs and tissues of the animals.

2. Usually no tularemia bacilli were found in the organs of the test animals after completion of the course of treatment, but in part of the animals a relapse was observed, accompanied by a slight increase of the number of the bacilli in the organs.

3. The best therapeutic results were obtained with kanamycin and streptomycin. The slighter action of chlortetracycline is due to the use of an insufficient dose, necessitated by the toxicity of this drug for guinea pigs."

18. Shchadilov, IU. M., The new insecticide "sevin" and the prospects of its use for the fight against ixodes ticks. Medits. parazitol. 35 (1966) 1: 73-77.
(From the Central Disinfection Institute, MH, USSR.)

As described in this article, promising results in the fight against ixodes ticks were obtained in the laboratory and in field tests with sevin (1-naphthyl-N-methyl-carbamate). Its action on the flea Xenopsylla cheopis was feeble.

19. Noteworthy articles quoted in a reference list in Meditsinskaia parazitologiii etc. (1966): 117-122.

Kuznetsova, V. I. Tick-borne encephalitis in the Irkutsk Oblast. Sbornik nauchn. rabot Irkutsk. med. instituta (1964) Vypusk 2: 110-117.

Briukhanova, L. V. and Darskaia, N. F. Observations on the suslik fleas Ceratophyllus tesquorum and Neopsylla setosa at the time of hibernation of their hosts. More data on the fauna and flora of the USSR. Moskovskoe obshchestvo ispytatelei prirody, otdel. zoologiia 40(1965):145-176.

Kosminskii, R. B. Nourishment and multiplication of the fleas of the house mice in nature and in experiments. Zoolog. zhurnal 44(1965) 9:1372-1375.

Maslennikova, Z. P. and Gorbunov, A. I. Observations on the biology of the fleas of the big gerbils in the northern sub-zone of the desert after eradication of the rodents, conducted with the aim of suppressing a plague epizootic. Ibidem: 1416-1419.

20. Gogokhiia, SH. D., Development of public health work in the Abkhazkaia ASSR during the 45 years of the Soviet regime. Sovetsk. zdravookhranenie (1966) 4: 17-20.

The author of this article renders a concise but adequate account of the enormous progress in medical and public health work made in the Abkhazkaia ASSR (situated in the region of Georgia) under the aegis of the Soviet authorities.

21. Rostik, M. B., Observations on the scientific-practical work in the sanitary-epidemic stations of the Sverdlovsk Oblast. Gigiena i sanit. (1966) 2: 70-73. (From the Sverdlovsk Sanitary-Epidemic Station.)

The author quotes inter alia an article by K..V. Bezhaeva and others entitled "A contribution to the epidemiology of tularemia in the Sankinsk natural focus," in which "was demonstrated the practical possibility of fighting actively against a natural tularemia focus through large-scale deratization in the floodlands of the rivers and lakes inhabited by water rats".

22. Ivanova, N. A.. Study of the conditions of interferon formation in chick embryo fibroblast tissue cultures infected with the Japanese encephalitis virus. Biull. eksperim. biolog. i medits. 61 (1966) 2: 75-78.
(From the Virus Department of the Institute of Experimental Medicine, AMS, USSR.)

This article is quoted by title.

23. Mel'nik, M. N. et al., Remarks on the liquidation of brucellosis in the Ukraininian SSR. Vrach. delo. (1966) 3: 89-91.
(From MH, USSR.)

The conclusions reached in this noteworthy article were as follows:

"1. Under the present conditions a complete liquidation of brucellosis in a large territory is theoretically possible and realizable. As confirmation of this postulation there is the fact of the complete liquidation of brucellosis of the goat-sheep type in the animal herds and of the human morbidity caused by the most dangerous type of infection -from sheep and goats and from cows infected with Br. melitensis - achieved in the whole of the Ukraine by the end of 1963.

2. The problem of the complete liquidation of cattle and swine brucellosis is bound to be solved analogously.

3. The specific prophylaxis of brucellosis is unsuitable in the absence of foci of the goat-sheep type.

4. During the period of the liquidation of cattle brucellosis strict attention has to be paid in the farms under treatment and in the meat-packing factories to measures of personal prophylaxis and of sterilization of the products and raw materials."

24. Semenov, B. F. et al., Interaction between the tick-borne encephalitis virus and diploid cells. Voprosy virusol. (1966) 1: 17-21.
(From the Moscow Institute of Virus Preparations.)

The conclusions of this article, the details of which cannot be briefly dealt with in these abstracts, were as follows:

"1. The tick-borne encephalitis virus actively multiplied in diploid cells without the development of cytopathogenic changes after the initial infection.

2. During cultivation in diploid cells it comes to the selection of a cytopathogenic variant with a lowered pathogenicity for white mice.

3. It appears possible in principle to obtain an inactivated vaccine from virus grown in diploid cells."

25. Balandin, I. G. et al., Influence of histone on the intracellular development of the vaccinia virus. Voprosy virusol. (1966) 1: 21-25.
(From the Institute of Biological and Medical Chemistry, AMS, USSR and the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

Summarizing the results of their well-documented investigations the authors stated that

"Histone, isolated from calf thymus, has the property of blocking the synthesis of DNA-containing viruses, forming apparently a complex with the virus and thus preventing the reproduction of the latter."

26. L'vov, D. K. et al., Dynamics of the humoral indicators of immunity in the seroprophylaxis of tick-borne encephalitis. Voprosy virusol. (1966) 1: 62-67.
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

This well-documented article must be studied in the original or in a translation.

27. Terskikh, I. I. and Gromyko, A. I., Mixed aerosol infection with ornithosis and grippe viruses. Voprosy virusol. (1966) 1: 80-84.
(From the D. I. Ivanovskii Institute of Virusology, AMS, USSR.)

The conclusions of the authors of this article, the text of which doesnot lend itself to a brief abstract, were as follows:

"1. After simultaneous aerosol infection with sub-infective doses of grippe and ornithosis virus one observes in the test animals a severe mixed infection.

2. A sub-infective dose of the grippe virus stimulates the development of ornithosis in animals after simultaneous or successive infection.

3. The presence of the grippe virus leads to an intensified accumulation of the ornithosis virus in the tissues of the experimental animals which leads to more diffuse affections in the first line in the lungs, then in the liver and spleen."

28. Tolybekov, A. S. and Krasnik, F. I., The morphogenesis of experimental ornithosis infection. Intravenous infection of white mice. Voprosy virusol. (1966) 1: 84-90. (From the Laboratory of Infectious Pathology of the Dept. of Morbid Anatomy of the Institute of Experimental Medicine, AMS, USSR and the Dept. of Specially Dangerous Infections of the Leningrad Pasteur SR IEM.)

Summarizing the results of their well-documented and illustrated descriptions the authors stated that

"1. Following intravenous infection of white mice the multiplication of the ornithosis virus takes place fundamentally in the elements of the reticulo-endothelial system (macrophages) and the liver cells.

2. Our findings permit to postulate a complete phagocytosis of the ornithosis virus by leukocytes.

3. In the liver the destruction of the infected cells is effected by a local leucocytic reaction, the formation of focal inflammations of the liver tissue and the subsequent formation of typical 'epitheloid' granulomata in these places."

29. Articles quoted in a reference list in Meditsinskaia parazitologiia, etc. (1966) 2:247:

Popov, V. F. et al. Use of clinical and serological methods for making epidemiological surveys and preparing maps in tick-borne encephalitis. In Metody mediko-geografich. issledovanii (Methods of Medico-Geographic Research), Moscow (1965): 157-161.

Neronov, V. M. and Ivanova, L. M., Experience of preparing maps of the structure of the areale of tick-borne encephalitis in the territory of the RSFSR and some methodical problems of their preparation. Ibidem: 149-157.

Tupikova, N. V. Some methodical problems of the preparation of large-scale map-schemes of the frequency of warm-blooded carriers of tick-borne encephalitis. Ibidem: 177-186.

30. Madzhidov, V. M., The clinique of repeated brucellosis. Sovet. medits. (1966) 3: 72-75.
(From the Dept. of Infectious Diseases of the Pedriatic and Sanitary-Hygienic Faculties of the Tashkent MI.)

Observations of 37 patients led the author to the following conclusions;

"1. Under suitable conditions repeated brucellosis attacks may occur after varying intervals (2-12 years) after convalescence.

2. The clinique of the repeated attacks shows in general the features characteristic for brucellosis but is characterized by a number of peculiarities: a) In a majority the repeated attacks begin with local affections without evidence of a generalized infection; b) Compared with the first attack the course of the illness is mild; the affections of the reticulo-endothelial system, of the structural and muscular apparatus and the nervous system are less marked.

3. In contrast to relapses one is entitled to speak of reinfections in instances in which suitable epidemic conditions prevail and marked signs of brucellosis make an appearance after a remission of not less than one year."

31. Dem'ianov, A. G. et al. (editors): Voprosy prirodnoochagovikh infektsii i meditsinskoi geografii (Problems of naturally focal infections and medical geography). Materials of a scientific-technical conference held at Tula, March 10-11, 1966.

1) Olsuf'ev, N. G., The problem of liquidating human tularemia attacks in the USSR. Pp. 3-7.

As stated in this authoritative report, which deals with the fight against tularemia in the Soviet Union during the period from 1960 to 1965, 10-13 million anti-tularemia vaccinations were administered per year, so that over 50 million

people must have been immunized during that time. To assess the results of these campaigns, 300-400,000 tularin tests were made per year. The degree of immunity assessed in this manner in many of the tularemia-affected areas reached or even surpassed 80-90%. Advantage was also taken of anti-rodent and anti-tick measures. A careful implementation of this program was found to be capable of preventing epidemic manifestations of the disease but it could not prevent the appearance of sporadic attacks.

During the period from 1960 to 1965 the mean annual morbidity of tularemia in the Soviet Union became 2.7 times less than that for the quinquennium 1955-1959 and 75 times less than that during the period from 1945 to 1949 when the vaccination campaigns were in the initial stage. If the incidence of the disease for 1960 was taken for 1, the corresponding morbidity figures for the subsequent years were 0.7 for 1961; 0.5 for 1962; 1.2 for 1963; 0.4 for 1964 and 0.1 for 1965. Epidemic manifestations were altogether absent during the last mentioned year.

Referring to the epidemics still observed from 1960 to 1964, Olsuf'ev maintained that their appearance was the result of unsatisfactory work of the local health stations, a part of which did not properly control the results of the vaccination campaigns and the personnel of which was in part not versed in the diagnosis of tularemia so that the initial stage of the outbreaks was apt to be overlooked. The departments of specially dangerous diseases of the sanitary-epidemiological stations which ought to stand in the forefront in the fight against tularemia were partly not properly fitted for their work and sometimes had no adequate laboratory facilities.

Conducting the anti-tularemia campaigns, main attention had to be paid to manifestations of the floodland-marsh type which recently were responsible for over 80% of the human attacks. Since the incidence of the disease was apt to be considerable in town inhabitants who visited the foci for agricultural work or for other purposes, care had to be taken properly to immunized these groups.

In part of the foci the ecology of the disease was still insufficiently known and deserved therefore additional investigations. The same held true of the "white spots" undoubtedly still existing on the tularemia maps. An appreciable danger was also that in the foci where the infection tended to disappear, decreasingly less attention might be paid to still occurring manifestations of the disease, thus paving the way for unexpected exacerbations of the situation.

Evaluating the methods of fighting the disease, the author stressed the fundamental value of anti-tularemia vaccination. At the same time efforts ought to be made to intensify the campaigns against rodents and ticks. However, the difficulties involved in implementing these methods in the vast territories often limited their usefulness.

Of utmost importance was to avoid spasmodic efforts in the fight against tularemia. Continuous efforts during prolonged periods were indispensable for successful campaigns against this infection.

2) Miasnikov, IU. A. et al., The intensity of anti-tularemia immunity in the rural population of the Tula Oblast after wholesale revaccination. Pp. 7-10.
(From the Tula Sanitary-Epidemiological Station.)

The conclusion of the authors of this statistical study was that

> "A large-scale assessment of the anti-tularemia immunity with the aid of cutaneous tularin tests made in not less than 2% of the rural population renders it possible properly to plan the vaccination campaigns, to control their execution and to take timely steps to enhance the herd immunity in localities (uchastki) with low immunity figures."

3) Uglovoi, G. P., Observations on the inoculability and reactogenicity of different series of tularemia vaccine and the length of the post-vaccinal immunity. Pp. 10-12.
(From the Tularemia Laboratory of the Department of Naturally Focal Infections of the Gamaleia IEM, AMS, USSR.)

This report can be quoted by title only.

4) Miasnikov, IU. A. et al., A contribution to the history of the liquidation of human tularemia in the Tula Oblast. Pp. 12-15.
(From the Sanitary-Epidemiological Stations of the Tula Oblast and the Plavskii Raion.)

As stated by the authors of this report, the details of which do not lend themselves to the purposes of a brief review, mass vaccinations against tularemia were started in the Tula Oblast in 1947. As a result of this prophylactic work the morbidity of tularemia in man was 180 lower in 1957 than it was a decade ago. Though active natural foci of the infection continue to exist in the oblast, human attacks of the disease have practically ceased to exist since 1958.

5) Dobrokhotov, B. P. and Pronina, E. A., Tularemia in the Briansk Oblast. Pp. 15-19.
(From the Tularemia Laboratory of the Department of Naturally Focal Infections of the Gamaleia IEM, AMS, USSR and the MH, RSFSR.)

This report, briefly dealing with the tularemia manifestations recorded in the Briansk Oblast (in the center of the European part of the Soviet Union) can be mentioned by title only.

6) Miasnikov, IU. A., The ravine-marsh (forest-steppe) variant of the steppe type of tularemia foci. Pp. 19-21.
(From the Sanitary-Epidemiological Station of the Tula Oblast.)

The author briefly describes a variant of the forest-steppe type of tularemia foci, met with in the Tula Oblast, but possibly present also in adjacent areas.

7) Levacheva, Z. A. et al., Detection of natural tularemia foci in the Tula Oblast through examinations of the sera of cattle blood. Pp. 21-23.
(From the Sanitary-Epidemiological Station of the Tula Oblast and the Oblast Veterinary-Bacteriological Laboratory.)

Following a proposal by Olsuf'ev the authors used cattle sera obtained from the veterinary laboratory for agglutination tests with tularemia antigen prepared in the Odessa IEM. The tests were made in a dilution of 1:10 after the sera had been subjected to absorption with brucellosis antigen and centrifugation.

Out of 3105 sera tested in this manner 57 (1.8%) positive results were obtained. A further series of 3844 sera was

tested with a specially sensitive antigen prepared by Emel'ianova from an American tularemia strain. Tests with this antigen made in a dilution of 1:40 gave a positive result in 24 instances (0.6%).

The relations existing between these results and the presence or absence of tularemia patients and tick vectors are shown in the following table:

Result of the Agglutination Tests	Farms Examined	Farms with Tularemia Record	Tick-infested Farms	Farms without Ticks
Positive	31	20	16	15
Negative	35	19	15	20

8) Dunaeva, T. N., An experimental study of tularemia in hares. Pp. 23-26.
(From the Tularemia Laboratory of the Dept. of Naturally Focal Infections of the Gamaleia IEM, AMS, USSR.)

In this article which does not lend itself to the purposes of a brief summary, Dunaeva reports on a continuation of her studies begun in 1954 on the experimental susceptibility of hares to tularemia.

9) Olsuf'ev, N. G. et al., Observation on the isolation from field mice of a tularemia strain with a lowered virulence for guinea pigs. Pp. 27-30.
(From the Tularemia Laboratory of the Gamaleia IEM.)

The details of this report must be studied in the original or in a translation.

10) Olsuf'ev, N. G. and Emel'ianova, O. S., Observations on the persistence of the two varieties of the tularemia bacillus in ice. Pp. 37-41.
(From the Tularemia Laboratory of the Gamaleia IEM.)

Previous observations by Olsuf'ev and Emel'ianova (1965) had shown that the neoarctic variety of the tularemia bacillus showed considerably lower keeping qualities in water than the palearctic variety. It seemed of interest under these circumstances to study the stability of the two varieties in ice.

As described by the two authors, such investigations were made with the palearctic strain No. 503 and the neoarctic strain Schu. Sterile river water to which the corresponding organisms had been added at a concentration of 10 million organisms, was filled in 10 ml quantities into test tubes and the latter were kept in the refrigerator at -5°C. The bacterial content of the fluids was then assessed from time to time with the aid of titration tests on white mice. The results of these tests are shown in the following table:

	Interval in Months							
Strain	0.1	2	4	7	8	9.5	10.5	11
503	1 million	100 000	10 000	1 000	100	1	1	0
Schu	1 million	1 000	1 000	10	1	0	0	0

Thus the palearctic variety proved in this series of tests also considerably more stable than the neoarctic variety.

11) Pomanskaia, L. A., Experimental mixed infection of tularemia and listeriosis. Pp. 38-41.
(From the Dept. of Specially Dangerous Infections of the Sanitary-Epidemiological Station of the Tula Oblast.)

Quoted by title.

12) Ravdonikas, O. V. et al., Observations on meadow tularemia foci in Western Siberia and their dependence on the lake-marsh foci of this infection. Pp. 31-34.
(From the Tularemia Laboratory of the Dept. of Specially Dangerous Infections of the Gamaleia IEM, AMS, USSR.)

13) Dobrokhotov, B. P., Rayonization of the territory of the European part of the USSR occupied by floodland-marsh tularemia foci. Pp. 34-36.
(From the Tularemia Laboratory of the Department of Specially Dangerous Infections of the Gamaleia IEM, AMS, USSR.)

These two ecological studies can be quoted by title only.

14) Aleksandrova, T. S. et al., Tick-borne encephalitis on the territory of the Tula Oblast. Pp. 78-82.
(From the Sanitary-Epidemiological Station of the Tula Oblast.)

15) Levacheva, Z. A. et al., Some results of the detection of Q-rickettsiosis in the Tula Oblast. Pp. 85-87.
(From the Sanitary-Epidemiological Station of the Tula Oblast and the Municipal Sanitary-Epidemiological Stations of Tula and Novomoskovsk.)

16) Chumakov, M. P. et al., Materials to the etiology and epidemiology of hemorrhagic fever with a renal syndrome. Pp. 59-60 .
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

17) Vasilenko, O. I. et al., Epidemiological peculiarities of hemorrhagic fever with renal syndrome in the inhabitants of Tula. Pp. 60-63.
(From the Tula Oblast and Municipal Sanitary-Epidemiological stations.)

18) Leshchinskaia, E. V., Clinical characterization of hemorrhagic fever with a renal syndrome in different geographical raions. Pp. 63-64.
(From the Institute of Poliomyeltis and Virus Encephalitides, AMS, USSR.)

19) Makarevich, T. S., Some materials to the clinique of hemorrhagic fever with a renal syndrome in the town of Tula. Pp. 64-66.
(From the 2nd Infect. Dept. of Tula Municipal Hospital No. 1.)

20) Vasilenko, O. G., A contribution to the problem of the laboratory diagnosis of hemorrhagic fever with a renal syndrome in the Tula Oblast. Pp. 66-69.
(From the Sanitary-Epidemiological Station of the Tula Oblast.)

21) Panina, T. V. and Katelina, A. F., Ixodes ticks--parasites of the red vole in the natural foci of hemorrhagic fever with a renal syndrome in the Tula Oblast. Pp. 69-72.
(From the 2nd Infectious Dept. of Tula N. A. Semashko Municipal Hospital No. 1.)

22) Katelina, A. F. and Panina, T. V., Fauna of the fleas of the red vole in a focus of hemorrhagic fever with a renal syndrome. Pp. 73-74.
(From the Sanitary-Epidemiological Station of the Tula Oblast.)

23) Vishniakov, S. V. et al. (TSnidi): Efficacy of forest deratization in the natural foci of hemorrhagic fever with a renal syndrome. Pp. 74-75.

24) Zhukova, L. D. and Kabanov, B. F., Experience of the execution of rodent destruction for the prophylaxis of hemorrhagic fever with a renal syndrome in the town of Tula. Pp. 76-77.
(From the Tula Municipal Disinfection Station.)

32. Zatulovskii, B. G. et al., Serological investigations of Q-fever in the USSR. Vrach. delo (1966)4: 102-104.
(From the Kiev Institute of Epidemiology, Microbiology and Parasitology.)

The conclusions reached by the authors through investigations made mainly in the Kiev and Chernigov oblasts were as follows:

"1. The diagnosis of Q-fever was confirmed in 30 hospital patients with the aid of complement fixation tests. In all instances one could observe an increase of the titers in the course of the illness or high titers in single tests

2. Serological investigations of 3,100 patients or convalescents with unclear feverish affections showed in 120 (3.9%) complement-fixing antibodies. There was no material difference in the frequency of seropositive reactors in the rural and urban populations. This proves the absence of active local Q-fever foci in the rural raions under investigation.

3. Serological examinations of workers in establishments engaged in processing animal raw products showed the presence of specific antibodies in 12.4%. The highest number of serologically positive reactors was observed among the workers in wool-processing establishments.

4. There existed a certain relationship between the size of the immune stratum in the threatened establishments and the length of work in them."

33. Kas'ianenko, A. M. et al., First investigations on ornithosis in Krivoi Rog. Vrach. delo. (1966)4: 110-111. (From the Sanitary-Epidemiological Station of the Dnepropetrovsk Oblast and the Krivoi Rog Municipal Sanitary-Epidemiological Station.)

The authors could prove the presence of ornithosis in the town of Krivoi Rog (Dnepropetrovsk Oblast) with the aid of complement fixation tests and intracutaneous allergic tests with ornithosis antigen made in (a) 35 patients hospitalized under the diagnosis of influenza, pneumonia, etc. and (b) 290 workers of fowl- and meat-packing establishments. In the first mentioned group 5 patients showed a positive complement fixation test, 3 also a positive allergic reaction. The percentages of positive complement fixation tests were 13.7% in the fowl-packing plant and 7.1% in the meat-packing establishment, the corresponding figures for the allergic tests were 17.7% and 10.5%. In a control group consisting of metal and mine workers positive results were obtained with complement fixation tests in 5.6% and in allergic tests in 7. %.

34. Tamazov, IU. A. and Gorodetskii, M. M. (Kiev), Appearance of interlobar pleuritis in psittacosis. Annotation. Vrach. delo. (1966)4:128.

The recovered patient dealt with in this paper had been infected through contact with a psittacosis-affected parrot.

35. Sorochenko, IA. I. and Shcherbak, IU. F., Observations on the clinical significance of the determination of the capillary permeability in chronic brucellosis. Sov. medits. (1966) 4:112-116.
(From the Dept. of Infectious Diseases of the Central Institute ATP.)

The conclusions reached by the authors through observations on 162 patients were that

"1. Disturbances of the permeability of the blood capillaries are observed in severe decompensated as well as in slight forms of chronic brucellosis.

2. For an evaluation of the condition of the patients the results of these tests are of supplementary value to those of the specific tests (serological reactions and allergic tests), which remain positive during the latent course of the illness and after recovery; From the results of the permeability tests one may determine the activity of the morbid process.

3. A determination of the capillary permeability with the aid of radio-active indication with Na^{24} and J^{131} may be of value in determining the efficacy of treatment.

4. Investigations of the degree of capillary permeability with the aid of J^{131} introduced intracutaneously are simple and form an objective test within the reach of all medical establishments.

36. Andzhaparidze, O. G. et al., Influence of some factors on the appearance of the interference phenomenon between the viruses of tick-borne encephalitis and western equine encephalomyelitis in tissue cultures. Voprosy virusol. (1966) 2: 158-163.
(From the Moscow SR Institute of Virus Preparations.)

Their investigations led the authors to the following conclusions:

"1. The mainifestation of interference between the tick-borne encephalitis and western equine encephalomyelitis viruses depends upon the kind of the tissue cultures on which the phenomenon is produced. In respect to the degree of the appearance of interference the cultures tested can be arranged in the following order: chick embryo fibroblasts, HEp-2, L-46, KEM, A-1, SCH and He La.

2. The tick-borne encephalitis strains showed differences in their interfering activity in tissue cultures, two variants of the strain Ix-10 proving most active.

3. In the tests made no relationship could be established between the degree of interference of the strains and their pathogenicity for peripherally infected mice.

4. An adaptation of the virus strains to the tissue cultures led to an increase of their interfering activity, as compared to brain variants, only in assays with homologous cultures.

5. The degree of interference of the strains was similar at 37° and 40° C but somewhat lower at 29°."

37. Grokhovskaia, A. A., Influence of the exogenous interferon on the reproduction of the viruses of tick-borne encephalitis and western equine encephalomyelitis in tissue cultures. Voprosy virusol. (1966) 2: 163-166. (From the Moscow SR Institute of Virus Preparations.)

The conclusions of the author of this study were that

"1. Preliminary treatment of chick embryo fibroblast cultures with the exogenous homologous interferon for 24 hours prolonged the latent period of the reproduction of the western equine encephalomyelitis and tick-borne encephalitis viruses 2 times.

2. The acme of the reproduction of these viruses in tissue cultures was present 24 hours later was the case in untreated cultures.

3. Treatment of the cultures with the interferon led to a decrease of the reproduction of the viruses, found to be present throughout the observation period (96 hours).

4. The development of the cytopathogenic effect produced by the western equine encephalomyelitis virus in chick embryo fibroblast cultures treated with interferon was retarded for 24 hours."

38. Zairov, G. K., Development of cytoplasmatic inclusions in tissue cultures of the ornithosis and trachoma viruses under the influence of tetracycline. Voprosy virusol. (1966) 2: 166-170.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

Quoted by title.

39. Khomiakov, A. I., Remarks to the problem of the state of immunity in persons who had suffered from smallpox. Voprosy virusol. (1966) 2: 238-239.
(From the Sanitary-Epidemiological Station of the Sasovsk Raion, Riazan Oblast.)

The author found that out of 163 persons who had suffered from smallpox during the period from 1884 to 1933, 98 (60.12%) reacted positively when re-vaccinated. Re-vaccinations of this group of people every 5-6 years are therefore indicated.

40. Minaeva, V. M. et al., Use of the neutralization reaction in tissue cultures for the laboratory diagnosis of tick-borne encephalitis in comparison with other serological reactions. Voprosy virusol. (1966) 2: 240-244.
(From the Perm SR Vaccine and Serum Institute and the Sanitary-Epidemiological Station of the Perm Oblast.)

The conclusions of the authors of this article were that

"1. For the laboratory diagnosis of 122 cases of tick-borne encephalitis use was made of the neutralization reaction in cultures of the HeLa cells with the cytopathogenic variant of the strain Sof'in (strain Sof-N).

2. A comparison of the results of these neutralization tests with those of the hemagglutination inhibition and complement fixation tests showed a high percentage of identical results given by all three tests.

3. In 34.5% of the patients antibodies to the virus of tick-borne encephalitis were absent. This suggests the presence in the Perm Oblast of other neurovirus infections possibly related to the group of arboviruses.

41. Boiakhchian, A. B. and Avershatian, M. S., The therapeutic and prophylactic efficacy of monomycin in the experimental pasteurellosis of fowls. Antibiotiki 11 (1966) 4: 377-378.
(From the Antibiotics Laboratory of the Dept. of Epizootology of the Erevan Zooveterinarian Institute.)

The conclusions reached by the authors of this note were as follows:

"1. Past. avium is characterized by a high sensitivity to monomycin; in a concentration of 1.5 units per ml monomycin inhibits the growth of the pasteurellae during an incubation of 3, 6, 8, 24 and 120 hours.

2. After intramuscular administration of monomycin in a dose of 25,000 units per kg its maximal concentration in the serum of the chicken is observed after one hour. A concentration of monomycin ensuring a therapeutic effect is maintained for 9 hours.

3. Single administrations of monomycin in doses of 50,000 units per kg three, six or eight hours before infection always protect the chicken against pasteurellosis.

4. Single administrations of monomycin in 1% novocaine solution prevent the death of chicken suffering from pasteurellosis.

5. Monomycin showed a high therapeutic efficacy in the treatment of chicken pasteurellosis. Therefore its clinical use may be recommended.

42. Bulatova, T. I. and Matveev, K. I., Botulism, its diagnosis and prophylaxis. Gigiena i sanitariia (1966) 4: 83-86.
(From the N. F. Gamaleia IEM, AMS, USSR.)

This survey is quoted by title.

43. Liubashevskii, M. I. and Taran, I. F., Complex immunization of guinea pigs with live vaccines against plague, smallpox, yellow fever and with a killed corpuscular vaccine against cholera in various combinations. Zh. mikrobiol. (1966) 4: 17-21.
(From the Stavropol Branch of the All-Soviet Anti-Plague Institute "Mikrob".)

For their studies the authors used the following vaccines:

(1) EV plague produced in the Stavropol Anti-Plague Institute (doses 3 billion organisms); (2) smallpox vaccine produced in the Moscow Institute of Virus Preparations (1.5 human doses); (3) yellow fever vaccine of the Paris Pasteur Institute (one human dose); and (4) cholera vaccine of the Saratov Mikrob Institute (dose 6 billion organisms).

Mixtures of the various combinations of these vaccines used by the authors were made ex tempore. The yellow fever vaccine was diluted with normal saline (pH 7.2-7.4) containing 10% of normal rabbit serum. This and the cholera vaccine were administered subcutaneously in the right groin region. The plague and smallpox vaccines were diluted with a 50% glycerol solution in normal saline and given cutaneously. Altogether the author used 270 guinea pigs divided into 13 groups as follows: 4 groups of 10 animals were immunized with the monovaccines under test; 5 groups of 20 animals each with divaccines; 3 groups of 30 animals each received respectively the smallpox, yellow fever and cholera vaccines and the smallpox, yellow fever and plague vaccines and 40 animals were immunized with all four vaccines under test.

In order to assess the state of immunity in the animals protected by these various vaccines, the authors resorted to the following methods:

(a) Plague: Challenge tests with 200 DCL of a virulent plague culture;

(b) Cholera: Infection with 2 DCL of a virulent cholera strain;

(c) Yellow fever: Hemagglutination inhibition tests made with the aid of goose erythrocytes;

(d) Smallpox: Hemagglutination tests with the aid of chicken erythrocytes.

Commenting upon the results of these tests, the details of which are set forth in tabular form, the authors stated that

(a) All 60 guinea pigs immunized with plague monovaccine or the combined vaccines survived the challenge and gave negative results when bacteriologically examined one month after this;

(b) In the case of cholera the combined vaccines produced a more intense immunity than the monovaccine - as the authors postulated, probably because the resistance of the animals to infection with V. cholerae depended not only upon a specific immunity but also upon an increase of the reactivity of their body in general.

(c) and (d) In analogy with the results obtained in the case of plague no differences were found in the case of the immunity of animals protected against yellow fever and smallpox with the corresponding monovaccines or the various vaccine combinations.

44. Zhurba, M. D. et al., Observations on the variability of the vaccinal plague strain EV. Zh. mikrobiol. (1966) 4: 64-67.
(From the Tarasevich State Control Institute of Medico-Biological Preparations.)

Summarizing the results of their studies, for the details of which reference must be made to their original article or to a translation, the authors stated the following:

> "In the course of the manufacture of live plague vaccine one could observe the formation of achromatic variants of the vaccinal strain EV which were fairly stable and differed from the standard strain through their cultural-morphological properties, a decreased capacity of persisting in the immunized guinea pigs and of producing in them states of allergy and immunity."

Accordingly the authors stressed the necessity of a constant watch over the qualities of the strains used for the manufacture of live plague vaccine.

45. Maiboroda, G. M. et al., Observations on the bacteriocidal power of dioxane in respect of P. pestis. Zh. mikrobiol. (1966) 4: 121-125.
(From the Order of Lenin S. M. Kirov Academy of Military Medicine and the Astrakhan Anti-Plague Station.)

The experiences gathered by the authors when using 1, 4 dioxane as a fixator in plague laboratory work with the luminescent antibody technique were that

"1. Fixation of smears made from pure cultures and of impression films from the organs of animals succumbed to plague with 1,4 dioxane for periods of 15 minutes led to a complete disinfection of the preparations while preserving the species-specific superficial antigens of the organisms.

2. In case of the presence in the preparations of pieces and fragments of the tissues dioxane proved insufficient for the complete sterilization of virulent materials. Therefore the preparations used for the immuno-luminescent staining of smears containing P. pestis must be made as thin as possible."

46. Bekker, M. L. and Kutsemakina, A. Z., The nucleotide composition of the desoxyribonucleic acid in bacteria of the genus Pasteurella. Zh. mikrobiol. (1966) 4: 84-86.
(From the Stavropol Branch of the All-Soviet Anti-Plague Institute "Mikrob".)

On the basis of their findings, the details of which must be studied in the text of this article, the authors postulated that, to judge from differences in the nucleotide composition of the desoxyribonucleic acid, the plague, pseudotuberculosis and tularemia bacilli did not belong to the same taxonomic group of organisms as the causative organisms of hemorrhagic septicemia (pasteurellosis) in animals.

47. Fikhman, B. A. et al., Photometric analysis of bacterial suspensions. Report IV. Possibilities of using the osmotic effect for a determination of the relationship of live and dead cells in suspensions of tularemia bacilli. Zh. mikrobiol. (1966) 4:130-134.

(From the Tarasevich State Control Institute of Medico-Biological Preparations.)

As described in this article, the text of which does not lend itself to the purposes of a brief abstract,

"under standard experimental conditions the turbometric method can be used for a rapid determination of the concentration of viable organisms in native and lyophilized cultures of tularemia bacilli."

48. Kats, L. N. et al., Methods of cytological examination of bacterial capsules. Zh. mikrobiol. (1966) 4; 95-98. (From the Gamaleia IEM, AMS, USSR.)

In the concluding paragraph of this article, the contents of which cannot be briefly summarized, it is stated that

"The investigations made showed that for a cytological study of capsules advantage may be taken of phase contrast microscopy as well as of the method of darkfield illumination. In these cases, provided that a proper selection of a fixator is made, the deformation of the capsules is insignificant. The conditions of staining of the four microbial species under study (B. anthracis, Streptococcus hemolyticus, Klebsiella pneumoniae and Azobacter chroococcum) were different. They differed also for the inner and outer parts of the capsules of each of the species. This difference leads to the postulation that the the inner and outer parts of the capsules have a different composition. However, cytochemic studies are necessary for a decision of this problem."

49. Levina, E. N. and Kats, L. N., A study of the antigens of B. anthracis and B. cereus with the aid of luminescent-serological and cytochemical methods of investigation. Zh. microbiol. (1966) 4: 98-103. (From the Gamaleia IEM, AMS, USSR.)

The conclusions reached by the authors of this article were that

"1. A study of the antigenic peculiarities of the uncapsulated form of a vaccinal B. anthracis strain and of sporbearing aerobes with the aid of immunochemical and cytochemical methods showed that the antigenic complexes are localized mainly in the superficial structures of the bacterial cells - in the envelope and in the cytoplasmatic membrane. Depending upon the species and age peculiarities of the strains, these antigens consist of a large complex of substances of the type of mucopeptides and lipoproteids, sensitive to lysozyme, trypsin, hyaluronidase, ribonuclease and fat solvents.

2. A comparative study of the antigenic peculiarities of the uncapsulated form of B. anthracis and sporbearing aerobes showed that the former possessed besides the antigens common for the sporbearing aerobes also specific antigens. The common presence and the specificity of the antigens was conditioned by differences in the chemical composition of the complex in relation to the growth phase of the organisms. The antigenic differences were marked most clearly in the phase of logmarithic growth. Characteristic for the pathogenic organisms was a fuller selection of the different substances determining the antigenic properties than that present in non-pathogenic organisms.

3. Serological methods, based on a determination of the antigenic peculiarities of B. anthracis can be used with a fair degree of accuracy for a detection of the vegetative uncapsulated form of B. anthracis only at the beginning of the logmarithic growth phase."

50. Aubakirov, S. A. et al., **Immunological transmutation in persons immunized cutaneously with the vaccinal strains Br. abortus No. 19 and 104-M.** Zh. mikrobiol. (1966) 4: 22-26.
(From the Central-Asian Anti-Plague Institute, the Taldy-Kurgan Anti-Plague Station and the Sanitary-Epidemiological Stations of the Semipalatinsk, TSelinograd and East Kazakhstan oblasts.)

The conclusions of the numerous authors of the present article were that

1. Compared to the strain Br. abortus No. 19, Strain 104-M survived in cutaneously vaccinated guinea pigs for a longer time and in more organs.

2. Immunization with a vaccine made from Strain 104-M produced in guinea pigs a more prolonged immunity than that following vaccination with Strain No. 19.

3. The cutaneous administration of vaccines prepared from either of the two strains produced only insignificant reactions even in persons giving positive reactions before the immunization.

4. In comparison with the vaccine made from Strain 19 that prepared from Strain 104-M produced in man a considerably more intensive immunological transmutation. In persons reacting positively before inoculation a marked allergic transmutation persisted for a long time. The accumulation of agglutinins in the serum was less marked in these persons than in those immunized for the first time. This difference apparently is related to the rapid elimination of the vaccinal strain from persons endowed with a residual immunity against brucellosis.

51. Kasymova, Kh. A. and Uzbekova, B. R., State of health of persons erroneously inoculated with an increased dose of the live brucellosis vaccine made from Strain BA-19. Zh. mikrobiol. (1966) 4: 139-140.
(From the Kazakh Institute of Regional Pathology, AMS, USSR.)

The authors of this autoreferate described the severe allergic reactions taking place in 21 previously sensitized persons who erroneously received intracutaneously increased doses (average 8 billion) of live brucellosis vaccine.

52. Shevelev, A. S., Influence of irradiation on the multiplication of the organisms of a vaccinal tularemia strain in the body of white mice and guinea pigs. Zh. mikrobiol. (1966) 4: 107-110.
(From the Smolensk MI.)

Working with a live tularemia vaccine prepared in the Gamaleia Institute, the author found that

"notwithstanding the absence of a clinically manifest exacerbation of the vaccinal process, X-irradiation administered 2 hours before immunization caused a lowering of the natural immunity of the tissues of guinea pigs against a vaccinal tularemia strain. Still, this drop of the immunity is temporary: 8 days after the vacccine administration the organisms could not be cultivated from either irradiated or the control animals.

In contrast to these findings, the drop of the natural immunity in the various organs of white mice was more marked and grew progressively, leading to the death of the animals from septicemia."

To judge from a small number of observations, splenectomy did not influence the results obtained with irradiation in white mice.

53. Gadzhiev, A. T. et al., Experimental anthrax infection of gamaside ticks. Izvest. AN Azerbaidzhan. SSR, Seriia biol. nauk (1965) 6: 53-57.

The authors succeeded in infecting 4 species of gamasidae (Haemolaelaps glasgowi, H. longipes, Eulaelaps stabularis and Haemogamasus nidi) in vitro with anthrax bacilli. The organisms remained pathogenic throughout the observation period of 2 weeks. Two of these species (H. glaszowi and E. stabularis) were also found capable of contracting the infection when biting experimentally anthrax-affected gerbils. It was further possible to infect one out of 12 healthy gerbils through the bite of anthrax-affected H. glasgowi.

54. Ganiev, M. K. and Akhmedov, N. M., Dynamics of the proteins and protein fractions of the serum and the therapeutic efficacy of the specific globulins of the hyperimmune serum in the experimental pasteurellosis of cattle. Izvest. AN Azerbaidzhan SSR, Seriia biol. nauk (1965) 6: 114-117.

The conclusions reached by the authors of this article were that

"1. In the serum of pasteurellosis-affected cattle one can note a lowering of the total proteins, the albumins and the alpha-globulin and an increase of the gamma- and beta- globulins.

2. Treatment of the animals with the combined gamma- and beta- globulins in the early stages of the disease results in 100% recoveries, that at the acme of the disease in 75% of recoveries.

3. The combined administration of gamma- and beta-globulins leads to a normalization of the protein composition of the blood.

4. The combined use of this compound proved to be more efficacious than treatment with the whole serum.

5. If it is considered that the original hyperimmune serum was trivalent and was used in pasteurellosis of sheep and swine as well as of cattle, it becomes clear that the combined gamma- and beta- globulins are bound to give favorable therapeutic and prophylactic results also in the treatment of sheep and swine. Therefore it is recommended to use this compound also in pasteurellosis of the latter animals.

55. Zhmurova, O. P. (Simferopol): Formation of a brucellosis focus. Vrachebnoe delo (1966) 5: 105-106. (From the Sanitary-Epidemiological Station of the Oblast.)

Observations made in 1959 in the village Suvorovo, Evpatoriia Raion of the Crimean Oblast led the author to the following conclusions:

"1. A latent infection of the lambs borne by mothers affected with brucellosis not manifested by serological and allergic reactions befor the first lambing (abortions) plays an important role in the formation of brucellosis foci in apparently sanitated farms.

2. In the fight against brucellosis great attention has to be paid to the possibility of an affection of the sheep and cattle belonging to private owners because such animals not rarely remain unobserved.

In the course of sanitation of brucellosis-affected farms a careful veterinary-sanitary control must be kept over the total surrender of the young animals owned collectively or individually (especially of the animals belowing to the shepherds)."

56. Olsuf'ev, N. G. and Emel'ianova, O. S., A contribution to the study of tularemia strains isolated in southern Europe. Zh. mikrobiol. (1966) 5: 3-4.
(From the N.F. Gamaleia IEM, AMS, USSR.)

The authors of this brief article recorded that 4 tularemia strains isolated in Bulgaria and 2 such strains obtained from northern Italy "did not differ in their properties from typical palearctic strains observed in the USSR, Poland, France, China and also from the palearctic strains circulating in the western states of North America (Olsuf'ev and Emel'ianova, 1962[1]; Emel'ianova, 1964[2])."

1) Zh. gig., epidem. (Prague) 6 (1962): 1.

2) Zh. mikrobiol. (1964) 3:7.

57. Shestakov, V. I. et al., Prophylaxis of Japanese encephalitis in the Primorsk Krai. Zh. mikrobiol. (1966) 5: 8-14.
(From the Vladivostok IEM and H and the Sanitary-Epidemiological Station of the Primorsk Krai.)

The conclusions reached by the authors of this well-documented article were as follows:

"1. In the Khazansk Raion of the Primorsk Krai, where Japanese encephalitis is endemic, in 1960 a beginning was made with the systematic conduct of prophylactic measures, consisting of the fight against the mosquito vectors of the virus of Japanese encephalitis (C. tritaeniorhynchus G., C. bitaeniorynchus G., C. pipiens, L., A. togoi, Theob., A. esoensis, Jam.) and also of the protection of the population against mosquito bites. The sites of breeding and habitation of the vectors were treated with freon-aerosols of DDT, 10% DDT dust, 25% DDT emulsion and a 2% watery solution of 50% DDT paste. Best results were obtained with anti-larval treatment of the sites in early spring.

2. For the protection of the population against mosquito bites use was made of dimethylphthalate, repudin and diethyltoluamide. The last mentioned preparation was found to be most effective."

58. Volkova, L. A. and IUshkin, G. B., Tularemia in the Orenburg Oblast. Report I. Zh. mikrobiol. (1966) 5: 14-18. (From the Sanitary-Epidemiological Station of the Orenburg Oblast.)

The authors of this report which does not lend itself to the purposes of a brief review, found through investigations made from 1960 to 1962 that besides water rats hamsters (Cricetus cricetus), forest mice (Apodemus sylvaticus) and sisels (Citellus maximus)were capable of serving as reservoirs of tularemia. (An earlier report on the tularemia situation in the Orenburg Oblast was published by the authors in the Zh. mikrobiol. [1961] 12: 56.)

59. Vil'kovich, V. A. and Sakharova, T. V., The fight against synanthropic rodents in the USA. Zh. mikrobiol. (1966) 5: 22-25. (From the Central SR Laboratory of the Hygiene of the Water Transport.)

This well-documented article is quoted by title.

60. Stepin, V. S., The importance of the regional lymph nodes in the process of immunogenesis in rabbits immunized with dry brucellosis vaccine. Zh. mikrobiol. (1966) 5: 93-98. (From the Semipalatinsk Zoo-Veterinarian Institute.)

The conclusions reached by the authors of this well-documented study were as follows:

"1. The initial and repeated administration of brucellosis vaccine prepared from Strain No. 19 produced a parallel increase of the plasma cells and the antibodies. The cytological and serological changes reached a maximum on the 6th day (after immunization) and disappeared on the 30th day after vaccination and on the 90th day after re-vaccination.

2. The cytological changes appearing after vaccination and re-vaccination were more marked in the regional than in the remote lymph nodes.

3. A resection of the regional lymph nodes 24-72 hours after vaccination or re-vaccination led to a marked decrease of the agglomeration of the antibodies in the blood and the remote lymph nodes."

61. Anishchenko, G. A., Ornithosis in the Donets Oblast. Zh. mikrobiol. (1966) 5: 116-120.
(From the Sanitary-Epidemiological Station of the Donets Oblast.)

As summarized by the authors, during the period from 1955 to 1962 4 familial outbreaks and one outbreak of an occupational character (among the workers of a fowl-processing establishment) took place in the Donets Oblast, a total of 20 persons being affected. Pigeons and ducks formed the reservoir of the infection.

62. Otaraev, I. B. et al., An outbreak of cow-pox. Zh. mikrobiol. (1966) 5: 143-145.
(From the North Ossetian MI and the Sanitary-Epidemiological Station of the North-Osetinsk Republic.)

As described by the authors of this article, in September 1963 the milkmaids of a farm were vaccinated against smallpox. They were permitted to resume their work before the crusts covering the site of the inoculation had been shed. As a result a massive outbreak of cow-pox appeared in the herd of the farm, the infection eventually spreading to 15 out of 24 of the milkmaids and to some of their helpers. The signs of the disease in this personnel were chills, pain in the muscles and the small of the back, fever up to 38° C lasting for 3-5 days and the appearance of itching nodules which became converted into pustules. The disease affected not only not vaccinated but also some vaccinated persons who apparently had not yet become immune.

The conclusions of the authors were as follows:

"1. Cow-pox in a cattle farm was initiated by milkers who had been vaccinated against smallpox and worked at a time when the crusts covering the sites of the inoculations had not yet been shed.

2. The infection of the cows started in this manner may lead to human infections with cow-pox (cross-infection). The disease in man lasts 2-3 weeks with characteristic clinical signs.

3. It is necessary to include in the instruction for smallpox vaccination a regulation concerning the time after which the milkers may be permitted to resume work after the inoculation; this permission ought to be given not earlier than one month after the vaccination, i. e. after the shedding of the crusts at the site of inoculation."

63. Zelenskii, A. I., The role of acute venous stasis in the pathogenesis of the renal syndrome of hemorrhagic nephroso-nephritis. Sovetskaia meditsina (1966) 5: 24-28. (From the Department of Morbid Anatomy of Khabarovsk MI.)

The conclusions reached by the author of this article were as follows:

"1. An acute complete obturation of the main trunks of the renal veins effected in experiments (on dogs) leads to the appearance of clinical and anatomical signs analogous to the renal process in hemorrhagic nephroso-nephritis.

2. Morphologically one notes in this process a marked enlargement of the veins of the medullary layer, a hemorrhagic apoplexy and a plasmorrhagia of the renal stroma with the subsequent appearance of focal and total necroses of the medulla. The lumen of the tubules is filled with hyaline casts and erythrocytes. These changes are also typical for hemorrhagic nephroso-nephritis.

3. Clinical and laboratory findings consisting of hematuria, proteinuria and the excretion of casts are constantly observed in the acute bilateral obturation of the renal veins as well as in hemorrhagic nephroso-nephritis. The analogous character of the renal syndrome in both processes is accentuated by the appearance of peculiar casts consisting of a fibrin base and epithelial complexes of the tubuli of the medulla of the kidneys torn off from the membrana propria.

4. The identical character of the clinical and anatomical changes in hemorrhagic nephroso-nephritis and in obturation of the renal veins shows that these changes are due to one and the same process - an acute venous stasis.

64. Ershov, F. I., Symplastoforming activity of the Venezuelan Equine Encephalomyelitis virus. Biulletin eksper. biol. i medits. 61 (1966) 5: 87-89.
(From the D.I. Ivanovskii Institute of Virology, AMS, USSR.)

Quoted by title.

65. Kudriavtsev, S. I. et al., A new apparatus-trap for the sampling and analysis of bacterial aerosols. Gigiena i sanitariia (1966) 6: 64-68.

This illustrated article can be quoted by title only.

66. Rehacek, J., Cultivation of tick-borne encephalitis virus in parenterally inoculated ticks. Acta virologica (English edition) 10 (1966) 3: 230-235.
(From the Institute of Virology, Czechoslovak Academy of Sciences, Bratislava.)

67. Slonim, D. et al., Pathogenicity of tick-borne encephalitis virus. Report V. Relation between infective and pathogenic activity for white mice. Ibidem: 236-240.
(From the Serum and Vaccine Institute, Prague.)

68. Verani, P. and Gresikova, M., Study of nonspecific thermostable inhibitors of arboviruses in human sera. Ibidem: 241-247.
(From the Institute of Virology, Czechoslovak Academy of Sciences, Bratislava.)

These three articles, which have been published in English, are quoted by title.

69. Marennikova, S. S. et al., Experimental substantiation of the chemoprophylaxis of smallpox. Biull. eksperim. biol. i medits. 61(1966) 6:68-71.
(From the SR Institute of Virus Preparations and the Ordzhonikidze All-Soviet SR Chemopharmaceutical Institute, Moscow.)

Studying the prophylactic action of beta-thiosemicarbason N-methylisatine in young mice experimentally infected with smallpox, the authors obtained the following results:

Times of Administration	Doses (mg per kg) Single	Daily	Total	Infected	Died
7 hours before and 30 minutes after infection	100	200	200	19	1
7 hours before infection	100	100	100	36	1
	25	25	25	16	1
Immediately after infection	50	100	500	24	1
	25	50	250	10	0
	12.5	25	125	10	0
	6.25	12.5	62.5	9	0
Controls	-	-	-	29	28

Thus, as the authors commented,

"It was shown that the generalization of infection, which is noted invariably in mice intracerebrally infected with the smallpox virus, did not take place in the treated animals. The absence of viremia and of an agglomeration of the virus in the internal organs seems to show that TC prevents the development of the virus in the susceptible tissues of the body of infected animals. As a result a severe affection of the internal organs which in untreated animals leads to their death, remain absent in the treated animals."

70. Dranovskaia, B. A., The activity of some ferment systems of the energy metabolism in Brucella melitensis strains of different virulence. Zh. mikrobiol. (1966) 6:54-58. (From the Gamaleia IEM, AMS, USSR.)

The conclusions reached by the author of this article, the text of which does not lend itself to a brief summary, were as follows:

"1. It was established that in genetically related Br. melitensis strains the process of an attenuation of the virulence is accompanied by an increase of the dehydrogenase and oxidase activity.

2. The degree of affinity of the dehydrogenases to the substrate is considerably larger in the case of virulent cultures than in that of the weakly virulent cultures, as shown by a lower Km value of the dehydrogenases examined in the case of the virulent cultures.

3. The dehydrogenase as well as the oxidase activity of the brucellae is considerably lower in the presence of succinate than in that of glutamate.

4. Regardless of the virulence of the cultures the optimal temperature for a manifestation of the dehydrogenase activity is 37°C; this indicates a definite adaptation of some ferment systems of Br. melitensis to the physiological conditions present in the body of the hosts."

71. Gubina, E. A. and Chernysheva, M. I., A study of the immunogenesis in immunization with combined live vaccines. Report II. Influence of anthrax vaccine on the intensity of the anti-brucellosis immunity. Zh. mikrobiol. (1966) 6: 117-121.
(From the Gamaleia IEM, AMS, USSR.)

Summarizing their findings, tha authors stated that

"1. Immunization with brucellosis vaccine simultaneously with anti-anthrax immunization led to the production of a brief anti-brucellosis immunity of slight intensity. Already after 3 months the anti-brucellosis immunity of the animals inoculated with the two vaccines became lowered more markedly than was the case in the animals receiving the monovaccine.

2. Simultaneous immunization with anthrax and brucellosis vaccines led to the development of an increased sensitivity against the brucellosis allergen.

3. The reaction of the animals immunized with the two vaccines to infection with the brucellosis strain No. 565 was characterized by more marked patho-histological changes."

72. Korobkova, E. I. et al., Influence of some conditions of cultivation on the virulence of P. pestis. Author's review. Zh. mikrobiol. (1966) 6: 146.
(From the All-Soviet SR Anti-Plague Institute "Mikrob", Saratov.)

Diushikian (1964) showed that a prolonged maintenance of genetically homogeneous virulent strains in flasks on a thick layer of agar (25 ml) led to a loss of virulence without changes of the other characteristics of the organisms including their virulence. On agar slants in tubes and also when kept in a desiccated state the strains kept their virulence. To confirm these findings, the authors of the present note made serial passages of the highly virulent plague strain No. 708 in flasks with a thick layer of agar (50 ml). At the same time transfers were made on agar slants. The prelimary findings indicated that already a not prolonged maintenance of a virulent strain on a thick layer of agar exerted an influence on its virulence: more avirulent organisms were found than in the cultures made on agar slants. After 5 and 10 passages on thick layers of agar the virulence of the strain 708 became lowered 20 times for mice and 125 times for guinea pigs.

On the synthetic medium of Jackson and Burroughs (1956) with hemin the original strain produced a large number of pigmented colonies while after passages on agar slants the number of such colonies became reduced only 6 times.

Apparently the rapid loss of virulence was due to the fact that on a large volume of the medium conditions were created which were favorable for a more intensive multiplication of the plague bacillus resulting in a rapid succession of generations. This led to an adaptation of the organisms to an existence outside the hosts, to a selection of organisms suited for growth on artifical media and a loss of virulence.

Frequent transfers of virulent plague strains on thick layers of agar led to a loss of virulence and a decrease of the immunogenic properties. Therefore, through a prolonged cultivation of virulent plague strains on a large volume of the nutrient medium with rare transfers (not more often than once per year) one may obtain variants with the properties of vaccinal strains, suitable to serve as live vaccines.

73. Tarasevich, I. V., Principles of the differentiation of R. tsutsugamushi. Zh. mikrobiol. (1966) 6: 143-145. (From the Gamaleia IEM, AMS, USSR.)

This summary can be quoted by title only.

74. Marennikova, S. S. and Tashpulatov, G. M., Comparative study of the inoculability, reactogenicity and antigenic activity of smallpox vaccines prepared from different strains. Preliminary communication. Vopr. virusol. (1966)3:266-272.
(From the Moscow SR Institute of Virus Preparations and the Tashkent SR Vaccine and Serum Institute.)

Comparative studies of 6 smallpox vaccines led the authors to the following conclusions:

"1. Differences in inoculability and reactogenicity found between smallpox vaccines prepared from strains distinct from each other by variances in the scheme of passages and their pathogenicity for laboratory animals.

2. Most reactogenic were the vaccines prepared from an Indian strain periodically passed through donkeys. A considerable reactogenicity was shown by a vaccine manufactured from a strain of the Tashkent Vaccine and Serum Institute. Least reactogenic was a strain, the pathogenicity of which for laboratory animals was lowest.

3. The antigenic activity of the vaccines, measured by the formation of anti-hemagglutinins was not uniform. However, no parallelism was found between the reactogenicity and the antigenic activity of the vaccines."

75. Zhdanov, V. M. et al., Cell metabolism in vaccinial infection. Vopr. virusol. (1966)3:296-298.
(From the D.I. Ivanovskii Institute of Virology, AMS, USSR.)

The conclusions reached by the authors of this brief but well documented article were as follows:

"1. Infection of He La cells with vaccinia virus leads to changes of the cellular metabolism in the early stages of infection.

2. During the first (1-3) hours after the infection one notes an increased synthesis of the cellular DNA followed by its decrease at the 5th hour.

3. The synthesis of the viral DNA takes place in the cytoplasm, beginning 2-3 hours after infection.

4. The infection with the vaccinia virus leads to an early stimulation of the protein synthesis in the cells."

76. Kucheruk, V. V. and Pchelkina, A. A., Viremia and dynamics of the complement-fixing antibodies in hedgehogs infected with the virus of tick-borne encephalitis. Vopr. virusol. (1966)3:352-357.
(From the Department of Naturally Focal Diseases of the N. F. Gamaleia IEM, AMS, USSR.)

The authors of this well documented article came to the following conclusions:

"1. Hedgehogs are highly susceptible to subcutaneous infection with the tick-borne encephalitis virus. Even a small dose of the virus, equalling 0.1 of the subcutaneous LD_{50} dose for mice invariably produces infection of the hedgehogs with a long-lasting and intensive viremia.

2. The viremia in the hedgehogs was of a two-wave character. The first peak of the intensive viremia was observed on the 4th-6th day after infection, the second on the 12th-15th day. Between these peaks the intensity of the viremia became lowered to a considerable degree.

3. Complement-fixing antibodies appeared in the blood of the hedgehogs on the 10th day after infection and reached their highest titer on the 30th day. By the 80th day after infection the antibodies became absent in a considerable part of the hedgehogs and on the 124th day they were present only in single animals.

2. Virus-neutralizing antibodies were present in the blood of a comparatively small part of the animals which had suffered from the infection."

77. Kokorev, V. S. and Zakirova, S. F., Precipitating antigens of viruses of the tick-borne encephalitis group obtained in tissue cultures. Vopr. virusol. (1966)3:357-362. (From the Sverdlov Institute of Virus Infections.)

Summarizing their findings, the details of which must be studied in the text of their article, the authors stated that precipitating antibodies were obtained from viruses of tick-borne encephalitis, Kyasanur forest disease, Omsk hemorrhagic fever as well as from Powassan, Langat and louping ill viruses.

78. Nikolov, Z. V. and Popova, O.M., Action of chemical disinfectants on the ornithosis virus. An Annotation. Vopr. virusol. (1966)3:375.
(From the Department of Epidemiology of the Institute of Specialization and Advanced Training of Physicians, Sofia and the D.I. Ivanovskii Institute of Virology, AMS, USSR, Moscow.)

Judging from experiments on mice and from tests with the excrements of ornithosis infected birds the author found monovalent iodine, hydrogen peroxide, benzylchlorphenol and dichlorhydontoine suitable for the disinfection of materials and objects contaminated with the ornithosis virus.

79. Vasil'eva, L. D. and Val'vachev, N. I. (Moscow): Action of hydrogen peroxide solutions on Rickettsia burneti on test objects. An Annotation. Vopr. virusol. (1966) 3:376.

As indicated by the authors of this note, R. burneti was rather resistant to hydrogen peroxide solutions.

80. Unanov, S. S. et al., A study of strains of the tick-borne encephalitis virus isolated from patients and dead bodies suspect of tick-borne encephalitis. An Annotation. Vopr. virusol. (1966)3:376.
(From the Moscow SR Institute of Virus Preparations, MH, USSR.)

As stated in this brief note, the authors, testing 28 blood specimens, 9 from the cerebrospinal fluid and 4 from the brain obtained positive results in experiments on new-born white mice and in tissue cultures in 15 instances.

81. Dzhivanian, T. I. and IAkovlev, A. I., Determination of the antigenic properties of the inactivated cultural vaccine against tick-borne encephalitis with the aid of serological methods. An Annotation. Vopr. virusol. (1966)3:376.
(From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

The authors of this note concluded that

> "One may postulate that complement fixation tests with the antigens of the inactivated culture vaccine against tick-borne encephalitis can be used for a preliminary control of the degree of its activity and that in this way manifestly unsuitable series of the vaccine may be rejected."

82. Sokovykh, L. I. et al., The passive hemagglutination reaction in virus infections. Vopr. virusol. (1966)3:254-259.
(From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

This well documented survey can be quoted by title only.

83. Vasiuta, IU. S. and Zhukov, V. I., Inter-oblast conference on the study and prophylaxis of hemorrhagic fever with a renal syndrome in the raion of the Pre-Ural and the middle course of the Volga. Vopr. virusol. (1966)3: 379-382.

This conference report does not lend itself to the purpose of a brief abstract.

84. Excerpts from the book Metody izucheniia prirodnykh ochagov boleznei cheloveka (Methods of Investigation of the Natural Foci of the Diseases of Man) edited by P. A. Petrishcheva and N. G. Olsuf'ev, Moscow, 1964.

a. Plague (Pp. 226-228)

The causative organism of plague is the bacillus Pasteurella Pestis Lehm. et Neum. It has usually a length of 1-2 mi and a width of 0.3-0.5 mi. In preparations from organs it usually shows bipolar staining. In Gram's staining it becomes decolorized. It grows on the usualy nutrient media, but better if native protein or other growth stimulants are added. On nutrient agar it forms colonies with a chromogenous granular center and a lace-like peripheral zone; in broth it does not render the medium turbid. It acidifies glucose, maltose, mannite, arabinose, levulose, but not lactose and saccharose. Some strains acidify glycerol or rhamnose. It does not ferment urea and does not form hydrogen sulfide or indole. It is agglutinated by anti-plague serum and lysed by plague bacteriophages. The plague bacillus is highly pathogenic for white mice and in the majority of cases for guinea pigs, and less pathogenic for white rats.

According to some biochemical properties and their host adaptation the plague strains can be divided into the following varieties or ecologo-geographical forms (see V. M. Tumanskii, Mikrobiologiia chumy, 1958 with supplement by M. I. Levi et al., 1961):

Variety	Acidification of Glycerol	Acidification of Rhamnose after 48 Hrs.	Reduction of Nitrates to Nitrites
Rat	-	-	+
Marmot	+	-	+
Suslik	+	-	-
Vole	+	+	+

The fundamental plague carriers in the USSR are rodents, mainly susliks (sisels), marmots, gerbils; sometimes plague is observed in hares, insectivora, beasts of prey and among camels.

In widespread acute plague epizootics among rodents most often the mean index of infectivity equals 1-5%; in particularly intensive epizootics in separate areas the index may reach 50% or more. In slowly progressing epizootics (sporadic incidence) single plague-affected animals are found among hundreds or thousands of the animals subjected to examination.

The fundamental plague vectors are the rodent fleas but in rare cases the infection may be found also in ixodes, argaside and gamaside ticks. In widespread epizootics among the rodents the mean index of infectivity among the fleas equals 1-2%, but in separate burrows with sick or dead rodents the index may rise to 30% or more. In slowly progressing epizootics the index of flea infection may equal small fractions of one percent and sometimes even an examination of some ten thousands of fleas does not lead to the isolation of plague cultures. In the USSR natural plague foci are situated in the deserts and steppes of the Transcaucasus, the region north of the Caspian Sea, Central Asia and the Gorni Altai; formerly plague was found also in Transbaikalia and the lower part of the Povolzh'e, but it has been liquidated there. In the case of an importation of plague into towns it may be observed among the rats and house-mice and also among their fleas.

The dead or killed mammals and also the fleas and other arthropods are examined with the aid of the fundamental bacteriological and biological methods. Dead rodents can also be examined with the aid of microscopy and luminescent sera, which facilitates a preliminary diagnosis. In the case of plague-suspect patients one examines with bacterioscopic, bacteriological and biological methods the sputum (in the case of pneumonia), the juice from the buboes, etc. From dead bodies one takes for examination pieces of the inflamed lymph nodes, the spleen, lung etc. For cultivation one uses agar of high quality, adding substanes which stimulate the growth of P. pestis from small inocula (Fieldes' digest, sodium sulfite, the manifestator of Pokrovskaia, etc.) For the examination of decayed materials one adds tothe agar gentian-violet in a concentration of 1:100,000 so as to suppress the growth of Proteus and other organisms of putrefaction. Animal experiments are made with white mice or guinea pigs for which plague is mostly a fatal infection. In impression films from the organs of animals succumbed to experimental plague infection one can see under the microscope a large number of bipolar-staining plague bacilli and on agar one obtains a growth of colonies characteristic for P. pestis. The cultures are identified as such of plague by a complex of characteristics-- morphological, staining, cultural, biochemical and antigenic properties, taking account of the immotility of the organisms (confirmed by cultivation in semi-solid agar), negative tests with urea and rhamnose (not always), lysis

by specific phages, pathogenicity for guinea pigs and white rats, etc. For the purposes of differential diagnosis account must be taken of the causative organism of pseudotuberculosis with which the plague bacillus has much in common. The plague nature of the isolated cultures must be confirmed by an anti-plague institute.

As supplementary methods for the observation of plague in rodents advantage may be taken of the passive hemagglutination test with the sera of live animals and of the antibody neutralization test for the examination of putrefied or mummified carcasses. A final decision for the presence of plague can be made only through isolation of the causative organism.

All work for the isolation and identification of plague cultures must be carried out according to the regulations for work with specially dangerous infections. (For details of the technique in the case of plague, see V. M. Tumanskii, 1958; I. S. Tinker and E. N. Aleshina, 1963.)

b. Pseudotuberculosis (Pp. 228-229)

The causative organism is the bacillus Pasteurella pseudotuberculosis Pfeiff. It is indistinguishable from the plague bacillus as far as its dimensions, form and staining properties are concerned. It grows well on the usual nutrient media without a need for their enrichment. On nutrient agar freshly isolated cultures form polymorphous colonies, more often without a surrounding zone; on ageing cultures the colonies are very similar to plague colonies. Growth in broth takes place with or without turbidity. It is motile (as shown by cultivation in semisolid agar after incubation for 2-3 days at room temperature). It acidifies glucose, maltose, mannite, arabinose, glycerol, rhamnose and other substances but does not acidify lactose and saccharose. It ferments urea and does not produce hydrogen sulfide or indole. It becomes agglutinated by anti-plague serum (at lower titers); some strains are lysed by plague bacteriophages. It is pathogenic for guinea pigs and usually for white mice, but it is not pathogenic for white rats even in large doses. Five serological types of the pseudotuberculosis bacillus have been described which differ in their somatic antigen.

Pseudotuberculosis is found mainly in rodents, e.g. in towns among house mice, grey rats, common voles, in rural localities among voles, water rats, field mice, etc. The mean index of isolation of pseudotuberculosis cultures under urban conditions equals per 1,000 of animals examined in the case of the grey rats

0.9, in that of the house-mice 1.3, and of the common voles 9.2 (G. V. IUshchenko). In France pseudotuberculosis has been found widely spread among the hares. The infection has been found also not rarely among hoofed animals, beasts of prey, insectivora, birds, monkeys, etc. and, among domestic animals, in cats, cattle, etc. A case of isolation of P. pseudotuberculosis from ixodes ticks is on record (N. I. Ul'ianov). In the USSR apparently pseudotuberculosis is present mainly in the forest and steppe zones and partly in the taiga as well as in towns.

For the detection of pseudotuberculosis it is more often necessary to examine killed animals, considerably less frequently such which died naturally. Examined are the lymph nodes, the spleen, liver and other organs. Biological and bacteriological methods are of fundamental value. In the case of patients suspect for pseudotuberculosis one examines with the aid of bacterioscopic, bacteriological and biological methods the inflammed mesenterial lymph nodes (in case of the pseudo-appendicitis form), sputum (in the pulmonary form), and in the case of dead bodies the spleen, liver and other organs. For the diagnosis of human pseudotuberculosis intra vitam one uses also the agglutination method and intracutaneous allergic tests (Mollaret). For cultivation one uses the usual nutrient media and at the same time the pathological material is used for tests on white mice or guinea pigs. Preliminary administration of cortisone markedly increases the susceptibility of white mice for the infection. The succumbed experimental animals are examined with the aid of bacterioscopy and cultivation; the surviving animals are killed after 10-15 days and cultivations are made from their organs.

The isolated cultures are identified through studies of their staining reactions, their cultural and biochemical properties, the degree of their pathogenicity for white mice, their motility, their lysability with specific phages and their antigenic properties. In the case of the serological identification it is necessary to consider the presence of five serological types with the aid of type-specific sera. For the purpose of the differential diagnosis one must keep in view the great similarity of the pseudotuberculosis bacillus and the plague bacillus. Of decisive importance are the motility, ascertained with semi-solid agar, the urease activity and the absence of pathogenicity for white mice (dose of 1 billion organisms subcutaneously) - signs not shown by the plague bacillus.

c. Pasteurellosis (hemorrhagic septicemia)

The causative organism of pasteurellosis is a small ovoid bacillus, the Pasteurella multocida Lehm. et Neum. It is 0.3-1.2 mi long. In preparations from organs it shows usually biopolar staining. Stained according to Gram's method it becomes decolorized. It grows on the usual nutrient media but better if native protein or other growth stimulants are added. It easily dies out when subcultivated on solid media but keeps well in semi-solid agar (0.3%) under a layer of vaseline if subcultivated after 3-4 months (T. N. Ponomareva and L. V. Rodkevich). On agar it forms small, round, half-transparent colonies which become clouded when ageing; growth in broth leads to turbidity of the medium. It is immotile. It acidifies glucose, mannite, saccharose, mannose; a part of the strains also acidify maltose, arabinose and other substances, but not lactose or rhamnose. No urease activity has been noted but there is production of indole and hydrogen sulfide. It is not agglutinated by antiplague serum and not lysed by plague bacteriophages. A part of the strains is highly pathogenic for white mice and rabbits whereas usually the pasteurellae are slightly pathogenic for guinea pigs.

Under natural conditions pasteurellosis has been found in many species of wild mammals, among them rodents and hares, and also in fowl. The disease often affects different species of domestic animals, specially swine, cattle, sheep, rabbits and chickens. In towns the infection is fairly common in grey rats and house mice; the frequency with which culutres are isolated from the grey rats equals 3 per 100 examinations of live animals (T. N. Ponomareva et al., 1962). Some varieties (races) of the causative organisms of pasteurellosis are known to exist, due to an adaptation to particular groups of animals (P. multocida aviseptica, P. m. boviseptica, etc.). Pasteurellosis is fairly ubiquitous. To establish the presence of the infection one examines succumbed as well as killed animals. Bacteriological and biological methods are of fundamental importance. For cultivation it is advisable to use highly nutrient media, e.g. meat-peptone agar to which serum has been added. Cultures are made from the spleen, the liver, affected parts of the lungs, etc. The same organs are used for animal experiments for which one uses white mice, pigeons or rabbits. Experiments with material from the fauces of captured animals (grey rats) may yield a greater number of positive cultures than tests with the internal organs (T. N. Ponomareva et al., 1962). In man one uses pathological material obtained from phlegmones and abscesses caused by the bite of infected animals, from affected parts of the lungs, the meninges and in cases of sepsis, cultures and animal experiments are used.

Animals for experiments must be obtained from a herd known to be free from spontaneous pasteurellosis. The succumbed experimental animals are examined with the aid of bacterioscopy and methods of cultivation. Surviving animals are killed after 10 days and cultures are made from their organs.

The isolated organisms are identified through studies of their morphology, staining properties, peculiarities of growth on nutrient media and their biochemical properties (characteristic are the acidification of saccharose, the production of indole and the absence of urease activity) as well as through experiments in white mice, rabbits and pigeons and investigation of their antigenic properties. For the serological indentification of the varieties of the pasteurellae one uses corresponding anti-sera. (For details of the technique for examinations in pasteurellosis, see N. I. Rozanov, 1952.)

d. Tularemia

The causative organism of tularemia is a very small cocco-bacillus, Francisella tularensis McCoy et Chapin. Its length is usually 0.3-0.5 mi, its width 0.2-0.3 mi. In preparations from organs it stains uniformly. If stained according to Gram's method it become decolorized. It does not grow on meat-peptone agar or in nutrient broth but can be cultivated on egg-yolk media or in media to which cystine, glucose and blood have been added. On solid media it forms small round colonies with a smooth border. It acidifies glucose, maltose, in a number of cases levulose and mannose; the American strains also acidify glycerol. The ability to attack these substances can be demonstrated only on special solid media which contain a limited amount of protein and have an accurately determined pH. Lactose, saccharose, rhamnose, mannite and a number of other substances are left unaltered by the tularemia bacillus. It forms hydrogen sulfide. It becomes agglutinated by anti-tularemia serum and at low titers by anti-brucellosis serum. It is highly pathogenic for white mice and guinea pigs, moderately so for white rats.

There exist two geographical races (subspecies), the American or neoarctic race, F. tularensis tularensis McCoy et Chapin, which is highly pathogenic for domestic rabbits, and the Euro-Asiatic or palearctic race, F. tularensis palaearctica ols., Emel. et Dun. which is slightly pathogenic for rabbits and does not attack glycerol. The former race is also more pathogenic for man.

The fundamental reservoir of tularemia is formed by rodents (water rats, musk rats, voles, house mice, hamsters, etc.) and hares. However, the infection may be present in insectivora, beasts of prey as well as in birds and domestic animals.

In widely spread epizootics the index of infectivity among the water rats equals 1-6%, rarely more; among the common voles in haystacks the number of animals succumbed to tularemia sometimes exceeds that of live animals. In the case of slowly progressing epizootics (sporadic incidence of the infection) single tularemia-affected animals are found if some hundreds or thousands of animals are examined and sometimes results remain negative when some ten thousands of animals are examined. The most important vectors and at the same time long-term preservers of the infection are the ixodes ticks but in a number of cases the tularemia bacillus is found also in mosquitoes, horse flies, gnats, fleas, gamasides and rodent lice.

The index of infectivity among adult ticks may reach 1-2% in the spring following an intense rodent epizootic but this index is much lower after a slowly progressing epizootic. In the focus of a vector-borne outbreak group examinations may lead to the detection of one instance of infection per 3,700 insects examined (M. I. Antsiferov et al. - see D. I. Brikman, 1963). Natural tularemia foci are situated mainly in the forest-steppe, forest and steppes zones, in the taiga and deserts in the river valleys and the shore of lakes.

The dead or killed vertebrates and also the blood-sucking insects are examined mainly with the aid of the biological method. The carcasses of rodents and hares can be examined also with the aid of bacteriological and bacterioscopic methods, particularly with the aid of luminescent sera; water and the washings of grain and hay are tested with the aid of the biological method. Cultivations are made from the lymph nodes, the spleen and other organs on coagulated egg-yolk media or blood agar. To prevent the growth of contaminating organisms it is recommended to add to the media penicillin (100-1,000 units per ml). Animal experiments are made with white mice or guinea pigs for which tularemia infection is fatal. In stained impression films from the organs of white mice succumbed to tularemia one observes microscopically a large number of very small bacilli; in cultures from this material one notes the characteristic growth of the organisms.

For a preliminary diagnosis in white mice succumbed to experimental infection one may use the thermoprecipitin reaction. Evidence has been adduced for the possibility of using the antibody neutralization test for the detection of tularemia in putrefied or mummified rodent carcasses (M. I. Levi et al., D. T. Shiraev et al.).

The identification of the isolated cultures offers no special difficulties in view of the very small dimensions of the tularemia bacillus, its inability to grow on ordinary media, the decolorization of Gram-stained preparations, the high pathogenicity of minimal doses for subcutaneously infected white mice or guinea pigs and the clear results of agglutination tests with specific anti-serum. All work for the isolation and identification of tularemia cultures must be carried out according to the rules laid down for work with the causative organisms of specially dangerous infections.

Patients suspected of tularemia are examined with the aid of the agglutination method and of allergic reactions. Of diagnostic value are agglutinations at a titer of 1:100 or more and particularly an increase of the titers. Allergic tests are made through intracutaneous administration of tularin. The same reactions, particularly allergic tests, are used for a determination of the state of immunity (immunological structure) in the population, resulting from attacks of the disease and following vaccination. For this purpose one uses cutaneous administrations of tularin.

Pathological material from patients (contents of skin ulcers, juice of buboes, etc.) or from dead bodies of tularemia victims (pieces of spleen, affected lymph nodes, etc.) are examined with the aid of the biological method.

For the examination of tularemia in animals for which the infection is usually not fatal (marmots, susliks, beasts of prey, domestic animals, etc.) one can use the agglutination test and in some cases allergic reactions. (For details of the technique of tularemia laboratory work, see N. G.Olsuf'ev and V. V. Kucheruk, 1954; N. G. Olsuf'ev and G. P. Rudnev, 1960.)

e. Brucellosis

The etiological agents of this infection are Brucella melitensis Bruce, the causative organism of goat-sheep brucellosis, Brucella abortus Schmidt et Weis, the causative organism of brucellosis in cattle and Brucella suis Huddleson, the causative organism of brucellosis in swine. Some authors consider

the causative organism of brucellosis in reindeers as a special type, naming it Brucella rangiferi (A. F. Pinigin and O. S. Petukhova, 1960), but this is a problem needing further study. The brucellae are comparatively small bacteria of a disk-like, ovoid or bacillary form. Usually they have a length of 0.5-1.5 mi and a width of 0.3-0.5 mi. Stained according to Gram's method they become decolorized. They grow on the usual or somewhat enriched media (liver agar or broth, preferably with the addition of glucose and glycerol, Hottinger's medium, the medium "D" of Ploskirev, etc.). Growth takes place slowly, specially in the first generations. On nutrient agar, they develop small, colorless, round and humpy colonies which after further growth enlarge and become cloudy. Growth in broth renders the medium turbid. The brucellae are immotile. They do not ferment carbohydrates and alcohols. They show an urease activity and, except B. melitensis, produce hydrogen sulfide. They become agglutinated by anti-brucellosis serum, at low titers also by anti-tularemia serum, and are lysed by brucellosis bacteriophages. They are pathogenic for guinea pigs and white mice but the infection is not fatal for these animals.

The fundamental reservoir of brucellosis are domestic animals, mainly sheep, goats, cattle and pigs; the disease is also present in horses, camels, reindeers, dogs, cats, chickens, rabbits, etc. Among the free-living animals brucellosis has been found in hares, antelopes, gazelles, wild goats, foxes, etc. In European hares the index of infectivity reaches in some places 6-14%, that in the antelopes in the Kazakhstan and the region north of the Caspian Sea 1%. In the territory of animal-breeding farms brucellosis has been found repeatedly in grey rats, house mice, more rarely in susliks, voles and other rodents. Outside such territories brucellosis among rodents is practically absent (M. M. Rementsova, 1961). Brucellae have been isolated repeatedly from ixodes and argaside ticks but the mean index of infectivity of ticks collected in brucellosis foci from domestic and wild animals equals only 0.03% (P. A. Vershilova et al., 1960). Rare instances are on record in which brucellae have been isolated from mosquitoes collected near animals affected by the disease (M. M. Rementsova, 1962).

Among the wild animals one can find all three types (species) of brucellae known for domestic animals. In the European hares one finds more often the swine type. In the USSR brucellosis among animals is encountered practically everywhere but the single types of brucellae show a tendency for localization in special regions.

For instance the goat-sheep type is mainly present in steppe and desert zones and in the mountains of the south. Brucellosis in animals is usually a non-fatal, often chronic disease and in the majority of cases a diagnosis has to be made intra vitam or in killed animals or in aborted fetuses. Hoofed animals and beasts of prey are examined by a combination of serological, bacteriological and biological methods; in the case of wild rodents one uses mainly the two last mentioned methods. Of the serological methods the use most often is the agglutination reaction (after Wright); of diagnostic value are the following titers of the sera: in rodents 1:10; in goats, sheep and dogs 1:50; in cattle 1:100 or more. Use can be made also of the complement fixation test. In sheep, pigs and reindeers parallel investigations are made of allergic reactions elicited through intracutaneous administration of a brucellar lysate allergen.

In hoofed animals one uses bacteriological and biological methods for examination of the aborted fetuses, the fetal membranes and the placenta, the milk, blood, urine, the contents of the capsules of affected articulations, etc.; in killed animals one examines affected lymph nodes, the spleen, etc. Ticks and blood-sucking insects are examined with the aid of the biological method.

Cultivations are made usually on liver agar or in liver broth. To facilitate the bacteriological diagnosis of brucellosis it is useful to add anti-phage serum to the media. For the examination of contaminated material one adds to the media gentian-violet (1:200,000). Considering the slow growth of the brucellae in the initial cultures, one incubates the latter at 37°C for periods up to one month or longer. The brucellae of the abortus type grow badly in the initial cultures under aerobe conditions; therefore it is recommended to make double cultivations and to keep one part of the cultures in an atmosphere containing a higher amount of carbon dioxide (10%). To increase the yield of brucellae on resorts to cultivation in fresh chicken eggs or in the yolk sac of 8-10 day old embryonated eggs. Experiments are usually made on guinea pigs. Thirty days after infection agglutination tests are made with the sera of the experimental animals; these are then sacrificed and cultures are made from the lymph nodes, the spleen and other organs. Experiments can be made also with white mice which after 20 days are sacrificed and subjected to bacteriological examination.

Patients suspect of brucellosis are examined with the aid of bacteriological, serological and allergic methods. In urgent cases one resorts also to the opsono-phagocytic test. For cultivations one uses the blood, bone-marrow, urine etc. Agglutination tests (Wright's reaction) are made in a dilution of 1:50. One may use also the slide agglutination test (Huddleson). The allergen is administered intracutaneously (Burnet's reaction). The sero-allergic tests are used also for observations of the population in order to detect persons who suffered from brucellosis in the past or to assess the continuity of the immunity resulting from vaccination.

The isolated cultures are identified through agglutination tests and by taking account of the morphological, staining, cultural and biochemical properties characteristic for brucellae. For a preliminary diagnosis one may use tests with bacteriophages. A distinction between the types (species) to which the cultures belong is made through cultivation on media to which aniline dyes (basic fuchsin, thionine, etc.) have been added, by ascertaining the ability of the cultures to form hydrogen sulfide, their urease activity and also by making agglutination tests with type-specific sera.

f. Scheme of Type Determination of Brucellae

(P..A. Vershilova, 1961)

Type	Bacteriostatic Method: Fuchsine 1: 50 000	Bacteriostatic Method: Thionine 1: 25 000	Production of Hydrogen Sulfide	Reaction of the Initial Cultures to Carbon Dioxide
B. melitensis	+	+	Absent or slight	-
B. abortus	+	-	Produced	+
B. suis	-	+	Abundant	-

All work connected with the isolation and identification of brucellae must be carried out according to the rules laid down for work with the causative organisms of specially dangerous infections. (For details of laboratory work with brucellae, see N. I. Rozanov, 1952; P. A. Vershilova et al., 1961; G. A. Balandin and M. S. Drozhevkina, 1963.)

g. Q-fever (P. 274)

The causative organism of Q-fever is the Rickettsia burneti. Most characteristic are small coccus-like and longer bacillary forms but one observes also the formation of filamentous forms. R. burneti passes through the filters of Mandler 7, 8 and 9. It is very resistant to extrinsic influences. In water it survives at room temperature for 160 days (N. I. Fedorova, 1955), in a 10% sodium chloride solution for 120 days (V. A. Silich, 1955), in sterile milk 125 days (R. I. Zubkova, 1955). This property determines the peculiarities of the transmission of Q-fever. Vector-borne infection is not the only mode of transmission and is practically of no epidemiological importance. Apparently this route of infection is of epizootological importance in the maintenance of the natural foci. R. burneti shows an ample adaptibility to various vectors and carriers. In the Soviet Union natural infection with R. burneti has been found in more than 40 species of wild mammals, 30 species of birds and 26 species of ticks.

Endemic foci of Q-fever are found in many zones. Mention has been made of desert, steppe, forest-steppe and forest types of natural foci (B. E. Karulin, 1962; K. N. Tokarevich, 1961). The method of detection of the natural Q-fever foci consists of the isolation of R. burneti strains from vectors and carriers. Guinea pigs serve as the experimental animals. One observes in them after an incubation period of 5-13 days a febrile disease lasting some days with an affection of the internal organs and multiplication of the rickettsiae in the spleen, liver, kidneys and adrenals. In the serum of animals which had suffered from the disease one notes the formation of agglutinins (at the end of the first week) and of complement-fixing antibodies (on the 10th-12th day). The animals which had the disease are not immune against infection with other rickettsiae. Cultivation of R. burneti in fertilized eggs leads to the death of the embryos after 6-7 days with an abundant accumulation of the rickettsiae. R. burneti can be isolated from the milk of cows and other animals, from the air of cattle-sheds, from water reservoirs contaminated by the excrements of animals, etc. A widely used method of survey and detection of Q-fever foci is the serological investigation of wild and domestic animals and of birds. Agglutination and complement fixation tests with a corpuscular antigen are used. The complement fixation test is highly specific at low dilutions (1:2 and 1:10). In an examination of rodents antibody titers of 1:5 - 1:20 were found (B. E. Karulin and A. A. Pchelkina, 1958). In foreign laboratories ample use is made for the examination of cattle kept

in the vicinity of man of the method of capillary agglutination. The complement fixation inhibition test can be recommended for the examination of avian sera (Tertsin, 1958; I. V. Tarasevich, 1962). The precautions to be adopted in the work are identical with those used in the case of specially dangerous bacterial diseases.

h. Isolation and identification of the viruses of tick-borne encephalitis, Omsk hemorrhagic fever, Japanese encephalitis and other viruses transmitted by arthropods
(Pp. 284-289)

When studying the natural foci of tick-borne and Japanese encephalitis, particularly when investigating the vectors, one should not search only for the viruses causing these infections. Presently more than 170 viruses have been isolated from blood-sucking vectors and at least one third of them are pathogenic for man. These viruses multiply actively in the body of vertebrates as well as in insects without harming the latter. The infection is transmitted to man through insect bites and therefore this group of viruses has been called arthropod-borne viruses or briefly arboviruses (Gordon Smith, 1959). They are mainly present in countries with a tropical or sub-tropical climate, less in zones with a moderate climate. The distribution of these viruses in the Soviet Union has been studied quite insufficiently. Investigations in the neighboring republic of Czechoslovakia showed the presence of the eastern variety of American encephalomyelitis, of a new virus related to the virus of Californian encephalitis (Bardoš and Danielova, 1959) and of the virus Chalovo identical with the Chittur virus of India (Bardoš and Chupkova, 1962).

According to V.M. Zhdanov and S. IA, Gaidamovich the viruses of animals transmitted by arthropods form the order of Arthropodophiliales. They contain ribonucleic acid, lipids and apparently a small amount of carbohydrates. With some exceptions their dimensions vary from 25 to 45 m mi, their form is spherical. Among the laboratory animals newly born mice are most sensitive to these viruses and are therefore used for the isolation of the latter.

According to the results of hemagglutination inhibition tests Casals et al. (see Arthropod viruses, WHO 1961) were able to detect antigenically related viruses and classify them into a number of groups. About 130 viruses could be classed into 20 groups while 42 could not be classified. In hemagglutination inhibition tests the members of each group show cross reactions but they were found to differ in their biological neutralization reactions. Complement fixation tests demonstrate to a varying degree similarities and differences of the antigenic structure in the various groups.

The generally adopted scheme of examinations for arthropod-borne viruses consists of isolation of the viruse through intracerebral infection of newly born mice and preparation from the brain (or in the case of some viruses, e. g. those of group C, from the blood serum) of antigens for the hemagglutination reaction and for identification of the antigen with the aid of hemagglutination inhibition tests with immune sera raised against representative strains of the various groups. According to the results of the hemagglutination inhibition tests the viruses can be referred to one or the other of the groups and then a closer identification is made with the aid of neutralization and complement fixation tests. Besides serological tests studies are made of the spectrum of pathogenicity of the viruses and their sensitivity of desoxycholate (which destroys the viruses). Recently tissue cultures have been used successfully for the isolation of arboviruses. The method of preparation of the hemagglutin in and the technique of the hemagglutination test will be described below in the section dealing with tick-borne encephalitis. The same technique is used in the case of other arbovirus infections.

Editor's Note:

SELECTED ABSTRACTS
Series IV, No. 1
will end the abstracting service
by
The Institute of Contemporary
Russian Studies
Fordham University

Series IV, Nos. 2-4
will conclude the service with
translations of articles
from

ANTHRAX
E. N. Shliakov, Ed.
Kishenev, 1964